Dell Precision™ Workstation M6500 Service Manual

Notes, Cautions, and Warnings

NOTE: A NOTE indicates important information that helps you make better use of your computer.

CAUTION: A CAUTION indicates potential damage to hardware or loss of data if instructions are not followed.

WARNING: A WARNING indicates a potential for property damage, personal injury, or death.

If you purchased a Dell™ n Series computer, any references in this document to Microsoft® Windows® operating systems are not applicable.

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Working on Your Computer

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Before Working Inside Your Computer

Use the following safety guidelines to help protect your computer from potential damage and to help to ensure your personal safety. Unless otherwise noted, each procedure included in this document assumes that the following conditions exist:

- You have performed the steps in Working on Your Computer.
- You have read the safety information that shipped with your computer.
- A component can be replaced or—if purchased separately—installed by performing the removal procedure in reverse order.

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.

CAUTION: Many repairs may only be done by a certified service technician. You should only perform troubleshooting and simple repairs as authorized in your product documentation, or as directed by the online or telephone service and support team. Damage due to servicing that is not authorized by Dell is not covered by your warranty. Read and follow the safety instructions that came with the product.

CAUTION: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface, such as a connector on the back of the computer.

CAUTION: Handle components and cards with care. Do not touch the components or contacts on a card. Hold a card by its edges or by its metal mounting bracket. Hold a component such as a processor by its edges, not by its pins.

CAUTION: When you disconnect a cable, pull on its connector or on its pull-tab, not on the cable itself. Some cables have connectors with locking tabs; if you are disconnecting this type of cable, press in on the locking tabs before you disconnect the cable. As you pull connectors apart, keep them evenly aligned to avoid bending any connector pins. Also, before you connect a cable, ensure that both connectors are correctly oriented and aligned.

NOTE: The color of your computer and certain components may appear differently than shown in this document.

To avoid damaging your computer, perform the following steps before you begin working inside the computer.

1. Ensure that your work surface is flat and clean to prevent the computer cover from being scratched.
2. Turn off your computer (see Turning Off Your Computer).
3. If the computer is connected to a docking device (docked), undock it.

CAUTION: To disconnect a network cable, first unplug the cable from your computer and then unplug the cable from the network device.

4. Disconnect all network cables from the computer.
5. Disconnect your computer and all attached devices from their electrical outlets.
6. Where applicable, disconnect any adapters from the computer.
6. Close the display and turn the computer upside-down on a flat work surface.

CAUTION: To avoid damaging the system board, you must remove the main battery before you service the computer.

7. Remove the main Battery.
8. Turn the computer top-side up.
9. Open the display.
10. Press the power button to ground the system board.

CAUTION: To guard against electrical shock, always unplug your computer from the electrical outlet before opening the display.

CAUTION: Before touching anything inside your computer, ground yourself by touching an unpainted metal surface, such as the metal at the back of the computer. While you work, periodically touch an unpainted metal surface to dissipate static electricity, which could harm internal components.

11. Remove any installed ExpressCards or Smart Cards from the appropriate slots.
12. Remove the Hard Drive.

Recommended Tools

The procedures in this document may require the following tools:

- Small flat-blade screwdriver
- #0 Phillips screwdriver
- #1 Phillips screwdriver
- Small plastic scribe
- Flash BIOS update program CD

Turning Off Your Computer

CAUTION: To avoid losing data, save and close all open files and exit all open programs before you turn off your computer.

1. Shut down the operating system:

   - **In Windows Vista®:**

     Click **Start**  **,** then click the arrow in the lower-right corner of the **Start** menu as shown below, and then click **Shut Down**.



   - **In Windows® XP:**

     Click **Start**® **Turn Off Computer**® **Turn Off**.

     The computer turns off after the operating system shutdown process is complete.

2. Ensure that the computer and all attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut down your operating system, press and hold the power button for about 4 seconds to turn them off.

After Working Inside Your Computer

After you complete any replacement procedure, ensure you connect any external devices, cards, and cables before turning on your computer.

CAUTION: To avoid damage to the computer, use only the battery designed for this particular Dell computer. Do not use batteries designed for other Dell computers.

1. Connect any external devices, such as a port replicator, battery slice, or media base, and replace any cards, such as an ExpressCard.

2. Connect any telephone or network cables to your computer.

CAUTION: To connect a network cable, first plug the cable into the network device and then plug it into the computer.

3. Replace the Battery.
4. Connect your computer and all attached devices to their electrical outlets.
5. Turn on your computer.

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Removing and Replacing Parts

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Technical Specifications

NOTE: Offerings may vary by region. For more information regarding the configuration of your computer, click Start® Help and Support and select the option to view information about your computer.

System Information	
Chipset	Mobile Intel PM55 Chipset
Data bus width	64 bits
DRAM bus width	dual-channel 64 bits **NOTE:** You must install memory in pairs for dual- channel mode to work.
Processor address bus width	36 bits
Flash EPROM	SPI 32 Mbits
Graphics bus	PCI-Express x16 Gen 2 capable
PCI bus	32 bits, 33 MHz

Processor	
Types	Intel Core i5-520M Dual Core Intel Core i5-540M Dual Core Intel Core i7-620M Dual Core Intel Core i7-740QM Quad Core Intel Core i7-840QM Quad Core Intel Core i7-940XM Quad Core Extreme
L1 cache	32 KB instruction, 32 KB data cache per core
L2 cache	Intel Core i5-520M Dual Core — 3 MB Intel Core i5-540M Dual Core — 3 MB Intel Core i7-620M Dual Core — 4 MB Intel Core i7-740QM Quad Core — 6 MB Intel Core i7-840QM Quad Core — 8 MB Intel Core i7-940XM Quad Core Extreme — 8 MB
External bus frequency	1333 MHz

Memory	

Type	DDR3
Speed	1333 MHz or 1600 MHz **NOTE:** Intel Core i5/i7 dual-core processors support 1600 MHz and 1333 MHz memory modules, but the memory will operate at 1067 MHz. **NOTE:** Intel Core i7-920XM Quad-Core processor supports memory frequency up to 1600 MHz. All other Core i7 Quad-Core processors support memory frequency up to 1333 MHz only, even if memory modules of higher frequency are installed.
Connectors	four SODIMM connectors **NOTE:** Computers shipped with dual-core processors support a maximum of two memory modules populated in slots A and B.
Module capacities	1 GB, 2 GB, 4 GB, and 8GB
Minimum memory	2 GB
Maximum memory	8 GB running at 1600 MHz 32 GB running at 1333 MHz
NOTE: When upgrading or replacing memory modules, you must ensure that the modules are paired and matched in slots A and B first, and then in slots C and D.	

Video	
Type	discrete
Data bus	PCI-Express x16 Gen 2 capable
Controller and Memory	NVIDIA Quadro FX 3800M (1 GB GDDR3 graphics memory) NVIDIA Quadro FX 2800M (1 GB GDDR3 graphics memory) AMD ATI FirePro M7820 (1 GB GDDR5 graphics memory)
Output	15-pin video connector dual mode DisplayPort connector

Audio	
Type	two-channel Intel High Definition Audio
Controller	IDT 92HD81B
Stereo conversion	24-bit (analog-to-digital and digital-to-analog)
Interfaces:	
Internal	high definition audio codec
External	microphone connector stereo headphone/external speaker connector
Speakers	two 2 W speakers

Internal speaker amplifier	class AB, 2 W Stereo BTL speaker amplifier
Volume controls	volume up, volume down, and mute buttons

Communications	
Network adapter	10/100/1000 Mbps Broadcom NetXtreme 5761E Gigabit Ethernet Controller
Wireless	internal WLAN, WWAN, Bluetooth, and UWB wireless support (if optional cards are purchased)

PC Card	
NOTE: The PC Card slot is designed only for PC Cards. It does NOT support ExpressCards.	
CardBus controller	Texas Instruments PCI 8412
PC Card connector	one (supports Type I or Type II card)
Cards supported	3.3 V and 5 V
PC Card connector size	80 pins

ExpressCard	
NOTE: The ExpressCard slot is designed only for ExpressCards. It does NOT support PC Cards.	
ExpressCard connector	ExpressCard slot (USB and PCI-Express based interfaces)
Cards supported	34 mm and 54 mm

Smart Card	
Read/write capabilities	supports ISO-7816-3 (asynchronous and synchronous Type I and II), ISO7816-12
Cards supported	1.8 V, 3 V, and 5 V
Program technology supported	java cards
Interface speed	9600–115, 200 bps
EMV level	level 1 certified
WHQL certification	PC/SC

Ports and Connectors	
Audio	microphone connector stereo headphone/external speaker connector
Video	15-pin video connector dual-mode DisplayPort connector
Network adapter	RJ-45 connector
USB	one USB 2.0-compliant connector

	one eSATA/USB 2.0-compliant connector two USB 3.0-compliant connectors
Memory card reader	8-in-1 memory card reader supporting SD, SDIO, Hi-density SD, Hi-capacity SD, XD, MS, MS-Pro, MMC, Mini-MMC, and MMC+ cards
Mini Card	two full-height mini card slots two half-height mini-card slots
CardBus/PCMCIA slot	supports Type I and Type II cards
IEEE 1394	Texas Instruments PCI 8412 controller, powered 6-pin connector
E-family docking connector	144-pin docking connector

Display	
Type (active-matrix TFT)	17 inches, WXGA+, LED 17 inches, WUXGA, LED, RGB, or RGB edge- to-edge glass
Active area (X/Y)	367.3 mm x 229.5 mm
Dimensions:	
Height:	
WXGA+/WUXGA	245 mm (9.64 inches)
WUXGA	248 mm (9.76 inches)
Width (WXGA+/WUXGA)	383 mm (15.08 inches)
Diagonal	432 mm (17.00 inches)
Maximum resolutions and brightness:	
WXGA+	1440 x 900 at 262 K colors, 220 nits
WUXGA	1920 x 1200 at 262 K colors, 300 nits
WUXGA RGB	1920 x 1200 at 16.7 M colors, 300 nits
Operating angle	0° (closed) to 152°
Refresh rate	60 Hz
Viewing angles:	
WXGA+ Horizontal	40°/40°
WXGA+ Vertical	15°/30°
WUXGA Horizontal	60°/60°
WUXGA Vertical	45°/45°
Pixel pitch:	
WXGA+	0.191 mm
WUXGA	0.225 mm

Keyboard	
Number of keys	United States: 101 keys United Kingdom: 102 keys Brazil: 104 keys Japan: 105 keys

Layout	QWERTY/AZERTY/Kanji

Touchpad	
Resolution:	
X axis	57.52 units per mm
Y axis	78.12 units per mm
Active Area:	
X axis	80.0 mm (3.14 inches)
Y axis	47.11 mm (1.85 inches)

Fingerprint Reader (Optional)	
Type	swipe fingerprint sensor, FIPS 140-2 / FIPS 201

Battery	
Type	9-cell "smart" lithium ion (90 W/hr)
Charge time with computer off	approximately 1 hour to 80% capacity
Operating time	battery operating time varies depending on operating conditions and can be significantly reduced under certain power-intensive conditions.
Life span	approximately 300 charge/discharge cycles
Dimensions:	
Depth	85 mm (3.35 inches)
Height	23 mm (0.90 inches)
Voltage	11.1 V
Temperature range:	
Operating	0 °C to 35 °C (32 °F to 95 °F)
Storage	–40 °C to 65 °C (–40 °F to 149 °F)
Coin-cell battery	3 V CR2032 lithium

AC Adapter	
Type:	
Slim	210 W or 240 W
Standard	210 W
Input voltage	100–240 VAC
Input current (maximum):	
Slim	3.5 A
Standard	3.2 A
Input frequency	50 Hz–60 Hz
Output current:	

Slim	12.3 A
Standard	10.8 A
Output voltage	19.50 VDC
Dimensions:	
Slim (210 W / 240W):	
Height	100 mm (3.94 inches)
Width	25.40 mm (1.00 inch)
Depth	200 mm (7.87 inches)
Standard (210 W):	
Height	100 mm (3.94 inches)
Width	43 mm (1.70 inches)
Depth	200 mm (7.87 inches)
Temperature range:	
Operating	0 °C to 40 °C (32 °F to 104 °F)
Storage	–40 °C to 65 °C (–40 °F to 149 °F)

Physical	
Height	38.5 mm (1.52 inches)
Width	393.0 mm (15.47 inches)
Depth	280.5 mm (11.04 inches)
Weight (minimum)	3.81 kg (8.40 lb)

Environmental	
Temperature range:	
Operating	0 °C to 35 °C (32 °F to 95 °F)
Storage	–40 °C to 65 °C (–40 °F to 149 °F)
Relative humidity (maximum):	
Operating	10% to 90% (noncondensing)
Storage	5% to 95% (noncondensing)
Maximum vibration (measured using a random vibration spectrum that simulates user environment):	
Operating	0.66 Grms (2 Hz–600 Hz)
Storage	1.30 Grms (2 Hz–600 Hz)
Maximum shock (measured with hard drive in head-parked position and a 2 ms half-sine pulse):	
Operating	142 G
Storage	162 G
Altitude (maximum):	
Operating	–15.20 m to 3048 m (–50 to 10,000 ft)

Storage	–15.20 m to 10,668 m (–50 to 35,000 ft)
Airborne contaminant level	G2 or lower as defined by ANSI/ISA-S71.04-1985

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Diagnostics

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Device Status Lights

	Turns on when you turn on the computer and blinks when the computer is in a power management mode.
	Turns on when the computer reads or writes data.
	Turns on steadily or blinks to indicate battery charge status.
	Turns on when wireless networking is enabled.
	Turns on when a card with Bluetooth® wireless technology is enabled. To turn off only the Bluetooth wireless technology function, right-click the icon in the system tray and select **Disable Bluetooth Radio**.

Battery Status Lights

If the computer is connected to an electrical outlet, the battery light operates as follows:

- **Alternately blinking amber light and blue light** — An unauthenticated or unsupported, non-Dell AC adapter is attached to your laptop.
- **Alternately blinking amber light with steady blue light** — Temporary battery failure with AC adapter present.
- **Constantly blinking amber light** — Fatal battery failure with AC adapter present.
- **Light off** — Battery in full charge mode with AC adapter present.
- **Blue light on** — Battery in charge mode with AC adapter present.

Battery Charge and Health

To check the battery charge, press and release the status button on the battery charge gauge to illuminate the charge-level lights. Each light represents approximately 20 percent of the total battery charge. For example, if four lights are on, the battery has 80 percent of its charge remaining. If no lights appear, the battery has no charge.

To check battery health using the charge gauge, press and hold the status button on the battery charge gauge for at least 3 seconds. If no lights appear, the battery is in good condition and more than 80 percent of its original charge capacity remains. Each light represents incremental degradation. If five lights appear, less than 60 percent of the charge capacity remains, and you should consider replacing the battery.

Keyboard Status Lights

The green lights located above the keyboard indicate the following:

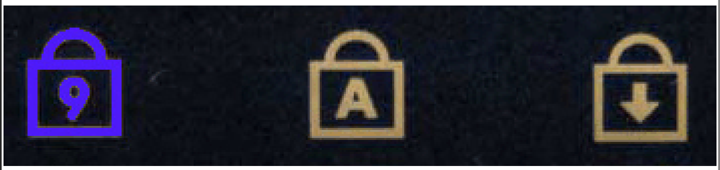
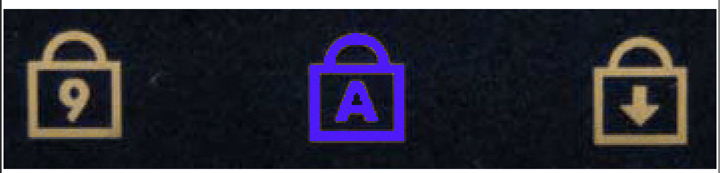
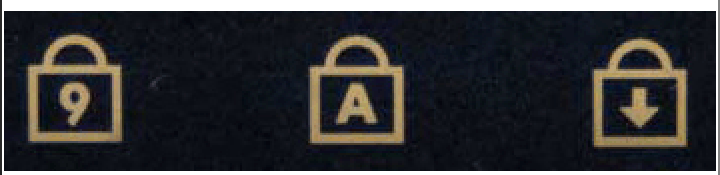
 Turns on when the numeric keypad is enabled.

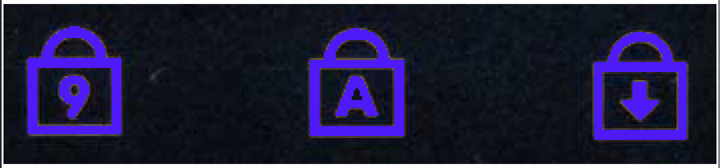
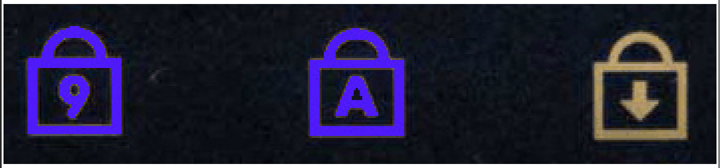
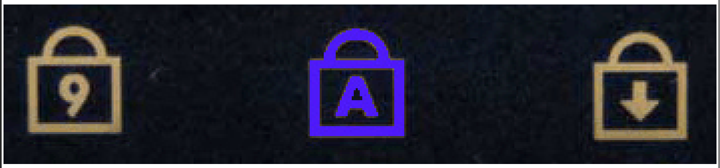
 Turns on when the Caps Lock function is enabled.

 Turns on when the Scroll Lock function is enabled.

LED Error Codes

The following table shows the possible LED codes that may display in a no-POST situation.

Appearance	Description	Next Step
ON-FLASH-FLASH 	No SODIMMs are installed	1. Install supported memory modules. 2. If memory is already present, reseat the module(s) one at time in each slot. 3. Try known good memory from another computer or replace the memory. 4. Replace the system board.
FLASH-ON-ON 	System board error	1. Reseat the processor. 2. Replace the system board. 3. Replace the processor.
FLASH-ON-FLASH 	LCD panel error	1. Reseat the LCD cable. 2. Replace the LCD panel. 3. Replace the video card/system board.
OFF-FLASH-OFF 	Memory compatibility error	1. Install compatible memory modules. 2. If two modules are installed remove one and test. Try the other module in the same slot and test. Test the other slot with both modules. 3. Replace the memory. 4. Replace the system board.
ON-FLASH-ON 	Memory is detected but has errors	1. Reseat the memory. 2. If two modules are installed remove one and test. Try the other module in the same slot and test. Test the other slot with both modules. 3. Replace the memory. 4. Replace the system board.
OFF-FLASH-FLASH 	Modem error	1. Reseat the modem. 2. Replace the modem. 3. Replace the system board.

FLASH-FLASH-FLASH 	System board error	1. Replace the system board.
FLASH-FLASH-OFF 	Option ROM error	1. Reseat the device. 2. Replace the device. 3. Replace the system board.
OFF-ON-OFF 	Storage device error	1. Reseat the hard drive and optical drive. 2. Test the computer with just the hard drive and just the optical drive. 3. Replace the device that is causing the failure. 4. Replace the system board.
FLASH-FLASH-ON 	Video card error	1. Replace the system board.

Dell Diagnostics

When to Use the Dell Diagnostics

It is recommended that you print these procedures before you begin.

NOTE: The Dell Diagnostics software works only on Dell™ computers.

NOTE: The *Drivers and Utilities* media is optional and may not ship with your computer.

Enter System Setup (see Entering System Setup), review your computer's configuration information, and ensure that the device you want to test displays in System Setup and is active.

Start the Dell Diagnostics from either your hard drive or from the *Drivers and Utilities* media.

Starting the Dell Diagnostics From Your Hard Drive

1. Turn on (or restart) your computer.
2. When the DELL logo appears, press <F12> immediately.

NOTE: If you see a message stating that no diagnostics utility partition has been found, run the Dell Diagnostics from your *Drivers and Utilities* media.

If you wait too long and the operating system logo appears, continue to wait until you see the Microsoft® Windows® desktop. Then shut down your computer and try again.

3. When the boot device list appears, highlight **Boot to Utility Partition** and press <Enter>.

4. When the Dell Diagnostics **Main Menu** appears, select the test that you want to run.

Starting the Dell Diagnostics From the Drivers and Utilities Media

1. Insert the *Drivers and Utilities* media.
2. Shut down and restart the computer.

   When the DELL logo appears, press <F12> immediately.

   If you wait too long and the Windows logo appears, continue to wait until you see the Windows desktop. Then shut down your computer and try again.

NOTE: The next steps change the boot sequence for one time only. On the next startup, the computer boots according to the devices specified in the system setup program.

3. When the boot device list appears, highlight **Onboard or USB CD-ROM Drive** and press <Enter>.
4. Select the **Boot from CD-ROM** option from the menu that appears and press <Enter>.
5. Type 1 to start the menu and press <Enter> to proceed.
6. Select **Run the 32 Bit Dell Diagnostics** from the numbered list. If multiple versions are listed, select the version appropriate for your computer.
7. When the Dell Diagnostics **Main Menu** appears, select the test you want to run.

Dell Diagnostics Main Menu

1. After the Dell Diagnostics loads and the **Main Menu** screen appears, click the button for the option you want.

Option	Function
Express Test	Performs a quick test of devices. This test typically takes 10 to 20 minutes and requires no interaction on your part. Run **Express Test** first to increase the possibility of tracing the problem quickly.
Extended Test	Performs a thorough check of devices. This test typically takes 1 hour or more and requires you to answer questions periodically.
Custom Test	Tests a specific device. You can customize the tests you want to run.
Symptom Tree	Lists the most common symptoms encountered and allows you to select a test based on the symptom of the problem you are having.

2. If a problem is encountered during a test, a message appears with an error code and a description of the problem. Write down the error code and problem description and follow the instructions on the screen.
3. If you run a test from the **Custom Test** or **Symptom Tree** option, click the applicable tab described in the following table for more information.

Tab	Function
Results	Displays the results of the test and any error conditions encountered.
Errors	Displays error conditions encountered, error codes, and the problem description.
Help	Describes the test and may indicate requirements for running the test.
Configuration	Displays your hardware configuration for the selected device. The Dell Diagnostics obtains configuration information for all devices from system setup, memory, and various internal tests, and it displays the information in the device list in the left pane of the screen. The device list may not display the names of all the components installed on your computer or all devices attached to your computer.
Parameters	Allows you to customize the test by changing the test settings.

4. When the tests are completed, if you are running the Dell Diagnostics from the *Drivers and Utilities* media, remove the media.

5. Close the test screen to return to the **Main Menu** screen. To exit the Dell Diagnostics and restart the computer, close the **Main Menu** screen.

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System Setup

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Boot Menu

The boot menu allows you to set a one-time boot sequence without entering system setup. You can also use this procedure to run the diagnostics on your

1. Turn on (or restart) your computer.
2. When the Dell™ logo appears, press <F12> immediately. The following options appear:

   Internal hard drive
   CD/DVD/CD-RW Drive
   Onboard NIC
   BIOS Setup
   Diagnostics

3. Select the device from which you want to boot and press <Enter>.

The computer boots to the selected device. The next time you reboot the computer, the previous boot order is restored.

Navigation Keystrokes

Use the following keystrokes to navigate the System Setup screens.

Navigation Keystrokes	
Action	**Keystroke**
Expand and collapse field	<Enter>, left- or right-arrow key
Exit BIOS	<Esc>—Remain in Setup, Save/Exit, Discard/Exit
Change a setting	Left or right-arrow key
Select field to change	<Enter>
Cancel modification	<Esc>
Reset defaults	<Alt><F> or **Load Defaults** menu option

Entering System Setup

You can enter System Setup using one of the following methods:

- Using the boot menu
- By pressing <F2>

Boot Menu

1. Turn on (or restart) your computer.
2. When the Dell™ logo appears, press <F12> immediately.
3. Highlight the option to enter System Setup and then press <Enter>

NOTE: Making changes in the boot menu does not make any changes to the boot order stored in the System Setup program.

<F2>

1. Turn on (or restart) your computer.
2. When the Dell logo appears, press <F2> immediately.

If you are unable to enter System Setup by pressing the <F2> key when the Dell Logo appears, continue to wait until you see the Windows desktop. Then restart your computer and press <F2> when the keyboard lights first flash.

System Setup Options

The following tables describe the menu options for the System Setup program.

<table>
<tr><th colspan="2">General</th></tr>
<tr><th>Option</th><th>Description</th></tr>
<tr><td>System Information</td><td>This section lists the primary hardware features of your computer. There are no configurable options in this section.

System Information
BIOS Version
Service Tag
Asset Tag
Ownership Tag
Memory Information
Memory Installed
Memory Available
Memory Speed
Memory Channel Mode
Memory Technology
DIMM A Size
DIMM B Size
DIMM C Size
DIMM D Size
Processor Information
Processor Type
Core Count
Processor ID
Current Clock Speed
Minimum Clock Speed
Maximum Clock Speed
Device Information
Primary Hard Drive
Secondary Hard Drive
Fixed Bay Device
System eSATA Device
Dock eSATA Device
Video Controller
Video BIOS Version
Video Memory
Panel Type
Native Resolution
Audio Controller
Wi-Fi Device
Cellular Device
Bluetooth® Device
Wireless USB Device
</td></tr>
<tr><td>Battery Information</td><td>Indicates the primary battery status. Also displays the type of AC adapter connected to the computer.</td></tr>
</table>

Boot Sequence	The computer attempts to boot from the sequence of devices specified in this list: • Diskette drive • USB Storage Device • CD/DVD/CD-RW Drive • Internal hard drive • Cardbus NIC • Onboard NIC This list specifies the order that the BIOS searches for devices while trying to find an operating system to boot. To change the boot order, select the device to be changed in the list then click the up/down arrows or use the keyboard PgUp/PgDn keys to change the boot order of the device. To remove devices for the boot list, clear the check boxes.
Date/Time	Displays current date and time settings.

System Configuration	
Option	**Description**
NOTE:	The System Configuration group contains options and settings relater to integrated system devices. (Depending on your computer and installed devices, the items listed in this section may or may not appear.)
Integrated NIC	Enables or disables the onboard LAN controller. Default setting: **Enabled w/PXE**
System Management	This option controls System Management mechanism. The settings are **Disabled**, **Alert Only**, and **ASF 2.0**. Default setting: **Disabled**
Parallel Port	This option determines how the parallel port on the docking station operates. The settings are **Disabled**, **AT**, **PS/2**, and **ECP**. Default setting: **ECP**
Serial Port	This option determines how the serial port on the docking station operates. It lets you avoid resource conflicts between devices by disabling or re-mapping the address of the port. The settings are Disabled, COM1, COM2, COM3, and COM4. Default setting: **COM1**
SATA Operation	This option configures the operating mode of the internal SATA hard drive controller. The settings are **Disabled**, **ATA**, **AHCI**, and **RAID**. Default setting: **RAID**
Miscellaneous Devices	Use the check boxes to enable/disable the following devices: • External USB Port I • Microphone • IEEE 1394 • ExpressCard • Precision ON Reader • Module Bay • PC Card • Media Card • eSATA Ports Default setting: **All enabled**

Video	
Option	**Description**
Ambient Light	Enabling this feature allows your computer to automatically change the brightness of the display panel

Sensor	based on the amount of light in the surroundings.
LCD Brightness	This option (represented by a slider bar for On Battery and On AC) sets the panel brightness when the ambient light sensor is off.

Security	
Option	**Description**
Admin Password	This field lets you set, change, or delete the administrator password. The administrator password enables several security features when set including: • Restricts changes to the settings in Setup. • Restricts the boot devices listed in the <F12> Boot Menu to those enabled in the **Boot Sequence** field. • Prohibits changes to the owner and asset tags. • Substitutes for the system password if the system prompts for a password during power on. Successful changes to this password take effect immediately. If you delete the admin password, the system password is also deleted. Also, the admin password can be used to delete the hard drive password. For this reason, you cannot set an admin password if a system password or hard drive is already set. The admin password must be set first if used in conjunction with a system and/or hard drive password.
System Password	This field lets you set, change, or delete the system password.
Internal hard drive PW	This field lets you set, change, or delete the password on the system's internal hard drive. Successful changes take place immediately and require a system restart. The hard drive password travels with the hard drive, so the hard drive is protected even when installed in another system.
Password Bypass	This option lets you bypass the system and internal hard drive password prompts during a system restart or when resuming from a standby state. Settings are **Disabled**, **Reboot Bypass**, **Resume Bypass**, and **Reboot & Resume Bypass**. The system will always prompt for the set system and internal hard drive password when powered on from an off state (cold boot). Default setting: **Disabled**
Password Change	This option lets you determine whether changes to the System and hard drive passwords are permitted when an Admin password is set. Use the check box to allow or disallow changes. Default setting: **Allow Non-Admin Password Changes**
TPM Security	This option lets you control whether the Trusted Platform Module (TPM) in the system is enabled and visible to the operating system. When disabled (check box is empty), the BIOS will not turn on the TPM during POST. The TPM will be non-functional and invisible to the operating system. When enabled (check box filled) the BIOS will turn the TPM on during POST so the it can be used by the operating system. Disabling this option does not change any settings you may have made to the TPM, nor does it delete or change any information or keys you may have stored there. It simply turns off the TPM so that it cannot be used. When you re-enable the TPM, it will function exactly as it did before it was disabled. Once TPM is enabled (check box filled), the available settings are **Deactivate**, **Activate**, and **Clear**. With the TPM in Deactivate mode, it will not execute any commands that use the resources of the TPM, nor will it allow any access to stored owner information. The Clear setting allows the owner's information stored in the TPM to be cleared. Use this to restore the TPM to its default state if you lose or forget the owner authentication data.
Computrace®	This field lets you activate or disable the BIOS module interface of the optional Computrace software. The settings are **Deactivate**, **Disable**, and **Activate**. The Activate and Disable options will permanently activate or disable the feature and no further changes will be allowed.
CPU XD Support	This field enables or disables the Execute Disable mode of the processor. Use the check box to enable / disable this feature. Default setting: **Enabled**

Non-Admin Setup Changes	This option lets you determine whether changes to the setup option are permitted when an administrator password is set. If disabled the setup option is locked by the admin password. It cannot be modified unless setup is unlocked. Use the check boxes to allow / deny access to the Wi-Fi Catcher Changes and / or Wireless Switch Changes within the system setup.

Performance	
Option	**Description**
Intel® SpeedStep	Use the check box to enable / disable mode for the CPU.

Power Management	
Option	**Description**
Wake on AC	Use the check box to enable/disable the computer to power up from the off or hibernation state when an AC adapter is inserted.
Auto On Time	This field sets the days, if any, when you would like the system to turn on automatically. The settings are **Disabled**, **Everyday**, or **Weekdays**. Default setting: **Off**
USB Wake Support	Use the check box to enable/disable the ability for USB devices to wake the system from Standby. This feature is only functional when the AC power adapter is connected. If the AC power adapter is removed during Standby, the BIOS will remove power from all of the USB ports to conserve battery power.
Wake on LAN/WLAN	This field allows the computer to power up from the off state when triggered by a special LAN signal or from Hibernate state when triggered by a special wireless LAN signal. Wake-up from the Standby state is unaffected by this setting and must be enabled in the operating system. • **Disabled** — Do not allow the system to power on when it receives a wake-up signal from the LAN or wireless LAN. • **LAN Only** — Allow the system to be powered on by special LAN signals. • **WLAN Only** — Allow the system to be powered on by special WLAN signals. • **LAN or WLAN** — Allow the system to be powered on by special LAN or wireless LAN signals. The factory default setting is **Off**.
Charger Behavior	This field lets you enable / disable the battery charger. If disabled, the battery will not lose power when the system is connected to an AC adapter but it will not charge either. Default setting: **Charger Enabled**

POST Behavior	
Option	**Description**
Adapter Warnings	Use the check box to enable/disable the BIOS warning messages when you use certain power adapters. The BIOS displays these messages if you attempt to use a power adapter that has too little capacity for your configuration. Default setting: **Enabled**
Keypad (Embedded)	This option lets you choose one of two methods to enable the keypad that is embedded in the internal keyboard. • **Fn Key Only** — The keypad is only enabled when you hold down the <Fn> key. • **By Num Lk** — The keypad is enabled when (1) the Num Lock LED is on and (2) no external keyboard is attached. Note that the system might not notice immediately when an external keyboard is detached. When Setup is running, this field has no effect—Setup works in the Fn Key Only mode. Default setting: **Fn Key Only**
Numlock LED	Use the check box to enable/disable the Num Lock LED when the system boots. Default setting: **Enabled**

USB Emulation	This option defines how the BIOS, in the absence of a USB–aware operating system, handles USB devices. USB emulation is always enabled during POST. Use the check box to enable/disable this feature. Default setting: **Enabled**
Fn Key Emulation	This field lets you use the <Scroll Lock> key on an external PS/2 keyboard the same way you use the <Fn> key on the computer's internal keyboard. Use the check box to enable/disable this feature. USB keyboards cannot emulate the <Fn> key if you are running an ACPI operating system such as Microsoft® Windows® XP. USB keyboards will only emulate the <Fn> key in non-ACPI mode (e.g., when you are running in DOS). Default setting: **Enabled**
Fast Boot	This field can speed up the boot process by bypassing some compatibility steps. • **Minimal** — Boot quickly unless the BIOS has been updated, memory changed, or the previous POST did not complete. • **Thorough** — Do not skip any steps in the boot process. • **Auto** — Allow the operating system to control this setting (this works only when the operating system supports Simple Boot Flag). Default setting: **Minimal**

Virtualization Support	
Option	**Description**
Virtualization	This field specifies whether a Virtual Machine Monitor (VMM) can utilize the additional hardware capabilities provided by Intel® Virtualization Technology. Use the check box to enable/disable this feature. Default setting: **Disabled**.
VT for Direct I/O	This option specifies whether a Virtual Machine Monitor (VMM) can utilize the additional hardware capabilities provided by Intel Virtualization Technology for Direct I/O. Use the check box to enable/disable this feature. Default setting: **Disabled**.
Trusted Execution	This option specifies whether a Measured Virtual Machine Monitor (MVMM) can utilize the additional hardware capabilities provided by Intel Trusted Execution Technology. The TPM, Virtualization Technology, and Virtualization Technology for Direct I/O must be enabled to use this feature. Use the check box to enable/disable this feature. Default setting: **Disabled**.

Wireless	
Option	**Description**
Wireless Switch	Use the check boxes to determine which wireless devices will be controlled by the wireless switch. The available options are **WWAN**, **WLAN**, **Bluetooth®**, and **Wireless USB.**
Wireless Devices	Use the check boxes to enable / disable the various wireless devices. The available options are **Internal WWAN**, **Internal WLAN**, **Internal Bluetooth®, and Wireless USB.**

Maintenance	
Option	**Description**
Service Tag	This field displays your system's Service Tag. If for some reason the Service Tag was not already set, you would be able to use this field to set it. If a Service Tag has not been set for this system, the computer will automatically bring up this screen when users enter the BIOS. You will be prompted to enter the Service Tag.
Asset Tag	This field allows you to create a system Asset Tag. The field can only be updated if the Asset Tag is not

	already set.

System Logs	
Option	**Description**
BIOS Events	This field allows you to view and clear BIOS power-on self-test (POST) events. It includes the date and time of the event as well as the LED code.
DellDiag Events	This filed allows you to view the diagnostic results from Dell Diagnostics and PSA. It includes the time and date, the diagnostic version and the resulting code.
Thermal Events	This field allows you to view and clear thermal events. It includes the date and time as well as the name of the event.
Power Events	This field allows you to view and clear power events. It includes the date and time of the event as well as the power state and reason.

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Battery

Dell Precision™ Workstation M6500 Service Manual

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.

Removing the Battery



NOTE: You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Slide the latch to release the battery from the computer.

3. Lift the battery up and away from the computer.

Replacing the Battery

To replace the battery, perform the above steps in reverse order.

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ExpressCard

Dell Precision™ Workstation M6500 Service Manual

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.

Removing the ExpressCard



NOTE: You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Push in the ExpressCard to release it from its slot on the computer.

3. Pull out the ExpressCard and remove it from the computer.

Replacing the ExpressCard

To replace the ExpressCard, perform the above steps in reverse order.

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Hard Drive

Dell Precision™ Workstation M6500 Service Manual

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.

Removing the Hard Drive



NOTE: You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the battery.
3. Loosen the captive screws that secure the hard drive to the hard-drive cage.

4. Pull the release tab to release the hard-drive cage from the computer.

5. Remove the hard-drive cage from the computer.

6. Slide the hard drive away from the computer.

7. Using the black pull-tab, lift the hard drive up and remove it from the computer.

8. Remove the screws that secure the black pull-tab bar to the hard drive.

9. Remove the black pull-tab bar from the hard drive.

Replacing the Hard Drive

To replace the hard drive, perform the above steps in reverse order.

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PCMCIA Card

Dell Precision™ Workstation M6500 Service Manual

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.

Removing the PCMCIA Card



NOTE: You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Push the release button twice to release the PCMCIA card from its slot on the computer.

3. Pull the PCMCIA card from the computer.

Replacing the PCMCIA Card

To replace the PCMCIA card, perform the above steps in reverse order.

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Coin-Cell Battery

Dell Precision™ Workstation M6500 Service Manual

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.

Removing the Coin-Cell Battery



NOTE: You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the battery.
3. Remove the access panel.
4. Slide the coin-cell battery out of the mylar sleeve.

5. Disconnect the coin-cell battery cable from the system board and remove it from the computer.

Replacing the Coin-Cell battery

To replace the coin-cell battery, perform the above steps in reverse order.

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Hard Drive

Dell Precision™ Workstation M6500 Service Manual

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.

Removing the Hard Drive



NOTE: You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the battery.
3. Loosen the captive screws that secure the hard drive to the hard-drive cage.

4. Pull the release tab to release the hard-drive cage from the computer.

5. Remove the hard-drive cage from the computer.

6. Slide the hard drive away from the computer.

7. Using the black pull-tab, lift the hard drive up and remove it from the computer.

8. Remove the screws that secure the black pull-tab bar to the hard drive.

9. Remove the black pull-tab bar from the hard drive.

Replacing the Hard Drive

To replace the hard drive, perform the above steps in reverse order.

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Secondary Hard Drive

Dell Precision™ Workstation M6500 Service Manual

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.

Removing the Secondary Hard Drive



NOTE: You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the Battery.
3. Remove the Access Panel.
4. Remove the screws that secure the secondary hard drive to the computer.

5. Pull the black tab to lift the hard drive up and away from the computer.

6. Remove the screws on either sides of the hard drive to release the hard-drive bracket from the hard drive.

7. Remove the hard-drive bracket from the hard drive.

8. Remove the hard-drive interposer from the hard drive.

Replacing the Secondary Hard Drive

To replace the secondary hard drive, perform the above steps in reverse order.

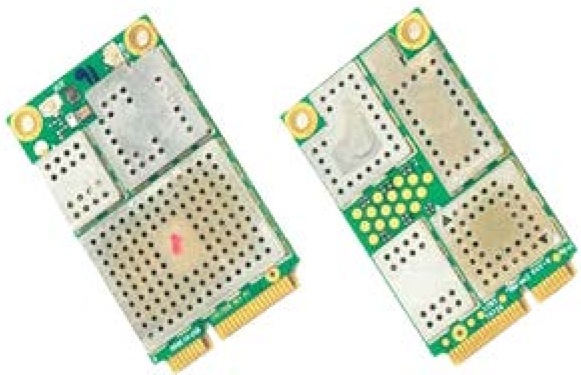
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Wireless Wide Area Network (WWAN) Card

Dell Precision™ Workstation M6500 Service Manual

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.

Removing the WWAN card



NOTE: You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the battery.
3. Remove the access panel.
4. Disconnect the antenna cables from the WWAN card.

5. Remove the screw that secures the WWAN card to the system board.
   The card pops up at a 45-degree angle.

6. Slide the WWAN card out of the connector on the system board.

Replacing the WWAN Card

To replace the WWAN card, perform the above steps in reverse order.

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Flash Cache Module (FCM)

Dell Precision™ Workstation M6500 Service Manual

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.

Removing the FCM Card



NOTE: You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the battery.
3. Remove the access panel.
4. Remove the screw that secures the FCM card to the system board.

5. Pull the FCM card away from the computer.

Replacing the FCM Card

To replace the FCM card, perform the above steps in reverse order.

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Memory

Dell Precision™ Workstation M6500 Service Manual

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.

Removing the Memory Module(s)



NOTE: You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. To remove the memory modules A and B, remove the battery and the access panel.
   To remove the memory modules C and D, remove the battery, hinge cover, and keyboard.
3. Carefully spread apart the securing clips on each end of the memory module connector until the memory module pops up.

4. Remove the memory module from the connector.

Replacing the Memory Module(s)

To replace the memory module(s), perform the above steps in reverse order.

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Camera

Dell Precision™ Workstation M6500 Service Manual

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.

Removing the Camera



NOTE: You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the battery.
3. Remove the access panel.
4. Remove the hinge cover.
5. Remove the keyboard.
6. Remove the display assembly.
7. Remove the display bezel.
8. Remove the display panel.
9. Disconnect the camera cable from the camera.

10. Remove the screws that secure the camera to the display assembly.

11. Remove the camera from the display assembly.

Replacing the Camera

To replace the camera, perform the above steps in reverse order.

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PCMCIA Card Cage

Dell Precision™ Workstation M6500 Service Manual

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.

Removing the PCMCIA Card Cage



NOTE: You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the battery.
3. Remove the access panel.
4. Remove the hard drive.
5. Remove the secondary hard drive.
6. Remove the hinge cover.
7. Remove the keyboard.
8. Remove the display assembly.
9. Remove the palm rest.
10. Release the card-cage cable tab.

11. Disconnect the card cage cable from the system board.

12. Remove the screws that secure the card cage to the computer.

13. Remove the card cage from the computer.

Replacing the PCMCIA Card Cage

To replace the PCMCIA card cage, perform the above steps in reverse order.

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Heat Sink

Dell Precision Workstation M6500 Service Manual

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.

Removing the Heat Sink



NOTE: You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the battery.
3. Remove the access panel.
4. Remove the hard drive.
5. Remove the secondary hard drive (if applicable).
6. Remove the hinge cover.
7. Remove the keyboard.
8. Remove the display assembly.
9. Remove the palm rest.
10. Loosen the four captive screws that secure the heat sink to the system board.

11. Remove the heat sink from the computer.

Replacing the Heat Sink

To replace the heat sink, perform the above steps in reverse order.

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Processor

Dell Precision™ Workstation M6500 Service Manual

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.

Removing the Processor



NOTE: You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the battery.
3. Remove the access panel.
4. Remove the secondary hard drive.
5. Remove the hinge cover.
6. Remove the keyboard.
7. Remove the display assembly.
8. Remove the palm rest.
9. Remove the heat sink.
10. Turn the cam screw counter-clock wise until it comes to a stop to release the processor from the system board.

11. Carefully lift the processor straight up from the slot and remove the processor from the computer.

Replacing the Processor

To replace the processor, perform the above steps in reverse order.

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System Board

Dell Precision™ Workstation M6500 Service Manual

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.

Removing the System Board



NOTE: You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the battery.
3. Remove the SIM Card.
4. Remove the hard drive.
5. Remove the access panel.
6. Remove the secondary hard drive.
7. Remove the memory.
8. Remove the flash cache module.
9. Remove the wireless personal area network (WPAN).
10. Remove the wireless local area network (WLAN).
11. Remove the wireless wide area network (WWAN).
12. Remove the optical drive.
13. Remove the coin-cell battery
14. Remove the express card.
15. Remove the media card.
16. Remove the PCMCIA card.
17. Remove the hinge cover.
18. Remove the keyboard.
19. Remove the internal memory.
20. Remove the display assembly.
21. Remove the palm rest.
22. Remove the heat sink.
23. Remove the video card.
24. Remove the processor.
25. Remove the fan.
26. Remove the PCMCIA card cage.
27. Remove the left I/O, right I/O, and IEEE 1394 boards.
28. Remove the screws that secure the system board to the computer.

29. Remove the system board from the computer.

Replacing the System Board

To replace the system board, perform the above steps in reverse order.

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SIM Card

Dell Precision™ Workstation M6500 Service Manual

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.

Removing the SIM Card



NOTE: You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the battery.
3. Pull the SIM card out of the slot in the battery bay to remove it from the computer.

Replacing the SIM Card

To replace the SIM card, perform the above steps in reverse order.

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Media Card

Dell Precision™ Workstation M6500 Service Manual

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.

Removing the Media Card



NOTE: You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Push in the Media Card to release it from the computer.

3. Pull the Media Card out to remove it from the computer.

Replacing the Media Card

To replace the Media Card, perform the above steps in reverse order.

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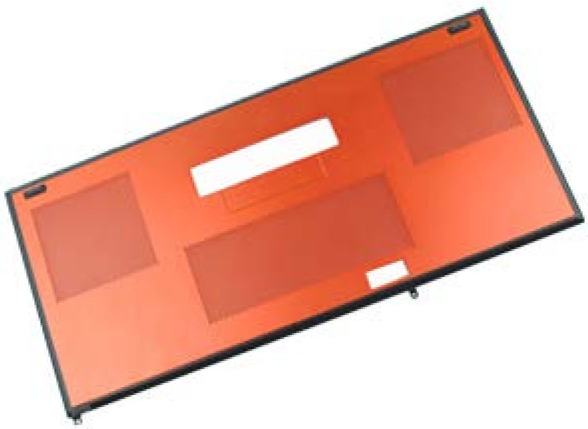
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Access Panel

Dell Precision™ Workstation M6500 Service Manual

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.

Removing the Access Panel



NOTE: You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the battery.
3. Remove the screws that secure the access panel to the computer.

4. Slide the access panel towards the battery compartment.

5. Pull the access panel away from the computer.

Replacing the Access Panel

To replace the access panel, perform the above steps in reverse order.

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Hinge Cover

Dell Precision™ Workstation M6500 Service Manual

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.

Removing the Hinge Cover



NOTE: You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the battery.
3. Starting from the left edge, gently pry the hinge cover away from the computer.

4. Flip the hinge cover over and place it on the keyboard.

5. Disconnect the cables that connect the hinge cover to the computer.

6. Remove the hinge cover from the computer.

Replacing the Hinge Cover

To replace the hinge cover, perform the above steps in reverse order.

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Optical Drive

Dell Precision™ Workstation M6500 Service Manual

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.

Removing the Optical Drive



NOTE: You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the battery.
3. Remove the screw in the battery bay that secures the optical drive to the computer.

4. Using a screwdriver or a small plastic scribe, nudge the optical drive towards the outside edge of the computer.

5. Pull the optical drive out of the optical-drive bay and away from the computer.

Replacing the Optical Drive

To replace the optical drive, perform the above steps in reverse order.

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Wireless Local Area Network (WLAN) Card

Dell Precision™ Workstation M6500 Service Manual

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.

Removing the WLAN card



NOTE: You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in [Before Working Inside Your Computer](#).
2. Remove the [battery](#).
3. Remove the [access panel](#).
4. Disconnect the antenna cables from the WLAN card.

5. Remove the screw that secures the WLAN card to the system board.
   The card pops up at a 45-degree angle.

6. Slide the WLAN card out of the connector on the system board.

Replacing the WLAN Card

To replace the WLAN card, perform the above steps in reverse order.

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Wireless Personal Area Network (WPAN) Card

Dell Precision™ Workstation M6500 Service Manual

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.

Removing the WPAN Card



NOTE: WPAN is a generic name for Ultra Wide Band (UWB) and Bluetooth® (BT). Insert a WPAN card only into the slot labeled WPAN/UWB/FCM.

NOTE: You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the battery.
3. Remove the access panel.
4. Disconnect the antenna cable from the WPAN card.

5. Remove the screw that secures the card to the computer. The card pops up at a 45-degree angle.

6. Slide the WPAN card out of the connector on the system board.

Replacing the WPAN Card

To replace the WPAN card, perform the above steps in reverse order.

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Keyboard

Dell Precision™ Workstation M6500 Service Manual

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.

Removing the Keyboard



NOTE: You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the battery.
3. Remove the hinge cover.
4. Remove the four screws that secure the keyboard to the computer.

5. Slide the keyboard towards the display to disconnect it from the system board.

6. Remove the keyboard from the computer.

Replacing the Keyboard

To replace the keyboard, perform the above steps in reverse order.

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Display Assembly

Dell Precision™ Workstation M6500 Service Manual

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.

Removing the Display Assembly



NOTE: You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the battery.
3. Remove the access panel.
4. Remove the hinge cover.
5. Remove the keyboard.
6. Disconnect the wireless antenna cables from the wireless cards.

7. Remove the wireless antenna cables from their routing guides.

8. Remove the four screws that secure the display assembly to the computer.

9. Turn over the computer and open the display.
10. Disconnect the two display cables from the connectors on the system board.

11. Remove the screw that secures the display assembly to the computer.

12. Loosen the captive screw and remove the cable retention bar that secures the display assembly to the computer.

13. Disconnect the display cable from the connector on the computer.

14. Remove the antenna cables from their routing guides.

15. Remove the screws that secure the display assembly to the computer.

16. Remove the display assembly from the computer.

Replacing the Display Assembly

To replace the display assembly, perform the above steps in reverse order.

Removing the Display Bezel



NOTE: You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the battery.
3. Remove the access panel.
4. Remove the hinge cover.
5. Remove the keyboard.
6. Remove the display assembly.
7. Remove the screw covers from the display bezel.

8. Remove the screws that secure the display bezel to the display panel.

9. Gently pry the display bezel away from the display panel by rolling your fingers between the edge of the bezel and display panel.

10. Remove the display bezel from the display panel.

Replacing the Display Bezel

To replace the display bezel, perform the above steps in reverse order.

Removing the Display Panel



NOTE: You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the battery.
3. Remove the access panel.
4. Remove the hinge cover.
5. Remove the keyboard.
6. Remove the display assembly.
7. Remove the display bezel.
8. Remove the screws that secure the top of the display panel to the display assembly.
9. Remove the antenna cables that run along both sides of the display panel.

10. Remove the screws on either sides of the display panel.

11. Peel the tape that secures the flex cable to the display panel.

12. Use the display connector release tabs to disconnect the display cable from the display.

13. Remove the display panel from the display assembly.

Replacing the Display Panel

To replace the display panel, perform the above steps in reverse order.

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Palm Rest

Dell Precision™ Workstation M6500 Service Manual

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.

Removing the Palm Rest



NOTE: You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the battery.
3. Remove the access panel.
4. Remove the hard drive.
5. Remove the secondary hard drive.
6. Remove the hinge cover.
7. Remove the keyboard.
8. Remove the display assembly.
9. Remove the screws that secure the palm rest to the bottom of the computer.

10. Disconnect the display cable and right IO-panel and fan cables from the system board.

11. Disconnect the left IO-panel and fan cables from the system board.

12. Remove the screws that secure the palm rest to the computer.

13. Gently pry the palm rest and remove the palm rest from the computer.

Replacing the Palm Rest

To replace the palm rest, perform the above steps in reverse order.

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I/O and IEEE 1394 Board

Dell Precision™ Workstation M6500 Service Manual

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.

Removing the Right I/O Board



NOTE: You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the battery.
3. Remove the access panel.
4. Remove the secondary hard drive.
5. Remove the hinge cover.
6. Remove the keyboard.
7. Remove the display assembly.
8. Remove the palm rest.
9. Remove the four screws that secure the right I/O board to the chassis.

10. Lift the right I/O board up and away from the computer.

Replacing the Right I/O Board

To replace the right I/O board, perform the above steps in reverse order.

Removing the Left I/O and IEEE 1394 Board



NOTE: You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the battery.
3. Remove the access panel.
4. Remove the secondary hard drive (if applicable).
5. Remove the hinge cover.
6. Remove the keyboard.
7. Remove the display assembly.
8. Remove the palm rest.
9. Remove the PCMCIA card cage.
10. Remove the four screws that secure the left I/O and IEEE 1394 board to the computer.

11. Lift the left I/O and IEEE1394 board up and away from the computer.

12. Disconnect the cable that connects the IEEE 1394 board to the left I/O board.

Replacing the Left I/O and IEEE 1394 Board

To replace the left I/O and IEEE 1394 board, perform the above steps in reverse order.

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Fan

Dell Precision™ Workstation M6500 Service Manual

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Removing the Fan



NOTE: You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the battery.
3. Remove the access panel.
4. Remove the hard drive.
5. Remove the secondary hard drive.
6. Remove the hinge cover.
7. Remove the keyboard.
8. Remove the display assembly.
9. Remove the palm rest.
10. Remove the heat sink.
11. Disconnect the fan cable from the system board.

12. Remove the screws that secure the fan to the computer.

13. Remove the fan from the computer.
14. Repeat step 11–step 13 to remove the other fan.

Replacing the Fan

To replace the fan, perform the above steps in reverse order.

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Video-Card Assembly

Dell Precision™ Workstation M6500 Service Manual

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.

Removing the Video-Card Assembly



NOTE: You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the battery.
3. Remove the access panel.
4. Remove the secondary hard drive.
5. Remove the hinge cover.
6. Remove the keyboard.
7. Remove the display assembly.
8. Remove the palm rest.
9. Remove the heat sink.
10. Disconnect the video-fan cable from the system board.

11. Loosen the captive screws that secure the video-card assembly to the computer.

12. Remove the video-card assembly from the computer.

Replacing the Video-Card Assembly

To replace the video-card assembly, perform the above steps in reverse order.

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Internal Memory

Dell Precision™ Workstation M6500 Service Manual

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.

Removing the Internal Memory



NOTE: You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the Battery.
3. Remove the Hinge Cover.
4. Remove the Keyboard.
5. Carefully spread apart the securing clips on the memory module connector until the memory module pops up.

6. Pull the memory module from its slot to remove it from the computer.

Replacing the Internal Memory

To replace the internal memory, perform the above steps in reverse order.

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